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DROUGHT HURTS LESS WITH REST-ROTATION MANAGEMENT

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ABSTRACT: Despite a third successive year of drought, forage production on a practical scale trial of rest-rotation grazing management was adequate for normal grazing. Cattle made good gains and came off the grazing allotment in good condition.

Precipitation in 1961

The past year, 1961, was the third consecutive year of drought in northern California. On the Harvey Valley demonstration grazing allotment, Lassen National Forest, the long term average annual precipitation is 18.0 inches. From July 1, 1960 to June 30, 1961 we had 10.7 inches of precipitation. Summer rainfall also was scanty at the Bogard Ranger Station, a few miles southwest of Harvey Valley, where just over 0.5 inch of rain fell in June, 0.7 inch in July, nearly an inch in August, and less than a tenth of an inch in September. This dry season followed droughts in 1959 and 1960, when 9.6 and 12.5 inches of precipitation were recorded.[1]

Rest-Rotation Management

Five range units are used in the management of Harvey Valley. Each unit is rested two full seasons and two half seasons during a 5-year rotation. After a full season's use, any one unit is rested a full season to allow the plants to regain vigor. The next year the unit is rested until mid-season to permit seed to ripen; then it is grazed for full livestock production. During the fourth year, the unit is again rested season-long, this time to permit seedling establishment. In the fifth year of the rotation, the unit is grazed moderately the first half of the season and rested the second half. This permits regrowth and restoration of vigor. This grazing system has been in operation on the allotment since 1954.

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[1] Rader, Lynn. Grazing management pays on perennial grass range during drought. U.S. Forest Serv. Pacific Southwest Forest and Range Expt. Sta., Berkeley, California. Res. Note 179. 1 page. 1961.

Range units scheduled for rest can be used in an emergency such as a poor feed year to provide extra grazing. This was necessary in 1959 and 1960. It wasn't necessary in 1961. Forage growth was a little better in 1961 owing largely to a more even distribution of spring rains. Also, the rains in July and August were from one-shot storms and allowed the plants to make some regrowth.

Cattle Response

We have observed the cumulative effects of three years of subnormal range growing conditions. On many ranges low forage production has resulted in reduced livestock gains and poor condition. On the Harvey Valley allotment, where rest-rotation management is being demonstrated, the cattle came off the range on September 30 in good condition.

One hundred head of yearling heifers were selected for weighing in 1961. Their mean weight was 518 pounds when they went onto the allotment June 5. At mid-season, July 26 the mean weight was 616 pounds, an average gain of 1.9 pounds per head per day for 51 days. Average weight of the yearling heifers on September 29 was 669 pounds. Mean gain per head per day for the last 65 days of the season was 0.8 pounds, and the average daily gain for the 116-day period was 1.3 pounds per head per day. We had good gains in the third year of drought, without using range supplements.

The heifers were tested for pregnancy at the mid-season weighing and 40 percent were found to be pregnant. This raised the question of how pregnancy would affect weights and gains. Pregnant heifers were heavier than open ones at the start of the season, but they showed no greater gain in weight than the open heifers the first half of the season. The second half of the season, pregnant heifers out-gained the open ones, presumably through growth of fetuses. But there was no statistically significant difference between them in total seasonal gain.

During the 1959 drought, yearling heifers that grazed season-long in one unit gained as much or more than those moved to new, ungrazed range at mid-season. 2/ This comparison was not made in 1960. In 1961, when performance of heifers was again compared, both open and pregnant heifers that grazed season-long in one unit did as well as those moved at mid-season.

2/ Woolfolk, E. J. Rest-rotation management minimizes effects of drought. U.S. Forest Serv. Pacific Southwest Forest and Range Expt. Sta. Berkeley, California. Res. Note 144. 2 pp. 1960.

Rest-rotation grazing meets needs of the range and the cattle.

A sample of open heifers moved at mid-season made greater gains for the season than a like sample of those grazed season-long in one unit. The difference was the result of greater gains made the first half of the season and not to any difference in gain the second half.

Pregnant heifers moved at mid-season made no better gains the second half of the season than those grazed season-long on the same area.

Grazing Use

In computing the actual grazing use for Harvey Valley, calves were counted as 0.3 animal unit, yearlings as 0.7, cows as 1.0, and bulls as 1.25. Total animal-unit-months (AUM) of grazing taken were 1,659.2 (table 1). The Harvey Valley allotment is rated for 2,050 AUM; thus 81 percent of the allotment capacity was used in 1961. But remember, two units were ungrazed. This means that some parts of the allotment were fully used.

Table 1.--Actual grazing use on Harvey Valley allotment, 1961

Unit	AUM's used		Total
	1st 1/2	2nd 1/2	
1	461.4	181.1	642.5
3	411.7	--	411.7
5	--	605.0	605.0
Total	873.1	786.1	1,659.2

In 1960 unit 1 was grazed only the first half of the season and unit 5 was practically ungrazed. These units successfully bore the brunt of the grazing in 1961 (table 1). That they were able to do so, we feel, is the result of the grazing system. Periodic rest from grazing aided the maintenance of plant vigor. The vegetation was able to take advantage of the better distribution of the scant moisture and make enough forage to support the cattle in good order.

We believe that, with rest-rotation management, the past three years of drought have hurt the range and rancher less than on similar ranges where season-long management was practiced.